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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,792	10/05/2006	Karlheinz Bing	BING ET AL. - 9 PCT	8699
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COLLARD & ROE, P.C. 1077 NORTHERN BOULEVARD ROSLYN, NY 11576			EXAMINER NGUYEN, HUNG Q	
			ART UNIT	PAPER NUMBER
			3741	
			MAIL DATE	DELIVERY MODE
			04/14/2009	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/589,792

**Applicant(s)**

BING ET AL.

**Examiner**

HUNG Q. NGUYEN

**Art Unit**

3741

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3,4 and 8-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,4 and 8-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/808)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

### DETAILED ACTION

1. This office action is responsive to the amendment filed on 12/22/2008. As directed by the amendment: claims 1, 3, 4 and 8-13 have been amended, claims 2, 5-7 and 14 have been cancelled. Thus, claims **1, 3-4 and 8-13** are presently pending in this application.

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 9-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase "wherein it consists" renders the claim indefinite because it is unclear whether the applicant is referring to the ***entire cylinder sleeve*** or the ***roughened region*** or the ***undercuts***, which consists of cast iron or aluminum-silicon alloy as recited in the claims.

#### ***Claim Rejections - 35 USC § 103***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claims 1, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kodama et al. (US 7,226,667 B2) in view of Sunada et al. (WO 2004/074667 / US 7,392,771).**

7. **Regarding claim 1,** Kodama discloses a cylinder sleeve 10 (fig. 1-3) for an internal combustion engine comprising at least one engagement segment (fig. 2-3, i.e., the entire roughened outer surface of the liner is interpreted as the at least one engagement segment) having at least one projection 20 (i.e., protrusions) having at least one undercut 18, at least in its lower region (see col. 4, lines 47-59), facing a crankcase (not shown) wherein the cylinder sleeve 10 is configured as a rough-cast sleeve, the outer surface 16 of which has a roughened region (fig. 1-2) reaching over its entire axial length (col. 7, lines 1-9) and consisting of a plurality of elevations with undercuts 18 and wherein a height of the elevations is between 0.2 mm to 2 mm (see col. 4, lines 60-63).

Furthermore, Kodama discloses the cylinder sleeve as essentially claimed except for an outer surface of which has at least one flattened region reaching over its entire length.

The patent to Sunada (refer to reference '771 since it is identical and in English) discloses that it is conventional in the art of cylinder sleeves to provide a cylinder sleeve 162a-162d (fig. 52), an outer surface of which has at least one flattened region reaching

over its entire length. Sunada further teaches that the sleeve has at least one engagement segment.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the cylinder sleeve, as taught by Kodama, to incorporate a cylinder sleeve wherein the outer surface of which has at least one flattened region reaching over its entire length, as suggested and taught by Sunada, for the purpose of providing a lightweight engine block having much smaller wall thickness wherein the engine block is smaller in size due to the reduced length required by the cylinder sleeves, and reducing manufacturing costs (see col. 9, lines 19-27 and 39-54).

8. **Regarding claim 8**, Sunada further discloses that the at least one flattened region (see fig. 52) is provided with a step having a flattened region lying radially on the outside, on its lower side facing the crankcase (not shown).

9. **Regarding claim 9**, the claimed phrase "spin casting" is being treated as product-by-process limitations and since it has been held that a product-by-process limitation is not construed as being limited to the product formed by the specific process recited, therefore, even though Kodama is silent as to the process used to produce the cylinder sleeve, it appears that the Kodama's product would be the same or similar as that claimed, especially since both applicant's product and the prior art product is made of cast iron material (col. 4, lines 44-46).

10. **Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kodama / Sunada in view of Hill et al. (US 6,557,513 B1), and further in view of Oh (US 6,920,859 B2).**

11. **Regarding claim 3**, Kodama / Sunada disclose the cylinder sleeve as essentially claimed, and further teach that the sleeve has constant sleeve wall thickness.

However, Kodama / Sunada does not teach that the cylinder comprising an outer contour that is elliptical in cross-section.

Hill teaches that it is conventional in the art to provide a cylinder sleeve comprising an outer contour that is elliptical in cross-section (see Abstract).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the cylinder sleeve, as suggested and taught Kodama / Sunada, to incorporate a cylinder sleeve having an outer contour that is elliptical in cross-section, as suggested by Hill, in order to allow engine designer to reduce overall length of the engine due to shortened bore spacing requirements (see Abstract and col. 4, lines 4-20).

Furthermore, a change in form or shape is generally recognized as being within the level of ordinary skill in the art. *In re Dailey*, 149 USPQ 47 (CCPA 1976).

However, the combination does not teach that the outer contour is formed by a depth of the roughened region that varies over a circumference.

The patent to Oh discloses that it conventional to provide a cylinder sleeve 1 (fig. 1-2) comprising an external surface (i.e., outer contour) that is roughened to provide protrusions 5 with undercuts (3, 15), wherein the depth of this roughened region is varied over the circumference of the sleeve 1 (see col. 2, lines 1-37) for the purpose of providing a strong coupling structure between the liner and the cylinder blocks (see col. 2, lines 32-37).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the cylinder sleeve, as suggested and taught by the combination, to incorporate a cylinder sleeve wherein the outer contour of the sleeve is formed by a depth of the roughened region that varies over a circumference, as suggested and taught by Oh, for the purpose of provided a strong coupling structure between the liner and the cylinder blocks.

**12. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kodama / Sunada in view of Gobbels (US 6,182,629).**

**13. Regarding claim 4,** Kodama / Sunada disclose the cylinder sleeve as essentially claimed except for an outer contour that consists, in cross section, of four arc-shaped segments that are approximately the same size.

Gobbels teaches that is it conventional in the art to provide a cylinder sleeve (see figure below) comprising an outer contour that consists, in cross-section, of four arc-shaped segments that approximately the same size.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the cylinder sleeve, as suggested and taught Kodama / Sunada, to incorporate a cylinder sleeve having an outer contour that consist, in cross section, of four arc-shaped segments that are approximately the same size, as suggested by Gobbels, for the purpose of preventing the occurrence of distortions during casting or engine operation (col. 1, lines 54-56).

**14. Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kodama / Sunada in view of Gohrbandt (US 2005/0150476 A1).**

15. **Regarding claim 10**, Kodama / Sunada disclose the cylinder sleeve as essentially claimed except for wherein it consists of an aluminum-silicon alloy.

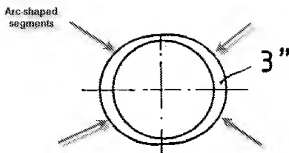
Gohrbandt teaches that it is conventional and well known in the art to provide cylinder sleeves (i.e., liners) which consists of an aluminum-silicon alloy in order to increase the wear resistance of the piston running surfaces (see p. 1, par. 0003; p. 3, par. 0025).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the cylinder sleeve, as taught by Kodama / Sunada, to incorporate a cylinder sleeve wherein it consists of an aluminum-silicon alloy, as suggested and taught by Gohrbandt, for the purpose of increasing the wear resistance of the piston running surfaces.

16. **Regarding claims 11-13**, the claimed phrases "gravity casting", "spin casting" and "lost-foam casting" are being treated as product-by-process limitations and since it has been held that a product-by-process limitation is not construed as being limited to the product formed by the specific process recited, therefore, even though Gohrbandt is silent as to the process used to produce the cylinder sleeve, it appears that the Gohrbandt's product would be the same or similar as that claimed, especially since both applicant's product and the prior art product is made of aluminum-silicon material (see. P. 3, par. 0041).



FIG. 4



***Response to Arguments***

17. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUNG Q. NGUYEN whose telephone number is (571) 270-5424. The examiner can normally be reached on Mon-Thu 8am - 4pm and alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MICHAEL CUFF can be reached on (571) 272-6778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HUNG Q. NGUYEN/  
Examiner, Art Unit 3741

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/Michael Cuff/

Supervisory Patent Examiner, Art Unit 3741